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ABSTRACT

The percentage of new assistant professor appointments who are women has lagged behind that of new women Ph.D.s. Additionally, the percentage of women promoted to associate and full professor has lagged behind that of those appointed assistant professor. The explanation offered for this slow progress of women in academe has been that faculty women have higher rates of voluntary turnover than do faculty men. This study tested that assumption by examining personnel records of all faculty at Michigan State University from 1981 through 1990, especially the 3,252 cases of faculty separations. The records gave information on individual characteristics of each faculty member including gender, birth year, salary, the faculty member's appointment status, and the reason for termination of appointment. The study found that tenure system faculty women and men had essentially the same low separation rates, while temporary faculty women and men had essentially the same high separation rates. Fewer than a quarter of all faculty men held temporary appointments as compared with nearly half of all faculty women. The annual separation rate of temporary faculty was about five times the annual separation rate of tenure system faculty. The study concludes that the disproportionate number of women with temporary appointment status accounts for the fact that faculty women have a higher turnover than faculty men. (PRW)

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Byron W. Brown and Stephen A. Woodbury

March 1995

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Gender Differences in Faculty Turnover

Byron W. Brown and Stephen A. Woodbury

March 1995

Over the last 15 to 20 years, colleges and universities have paid increasing attention to attracting and retaining faculty women. The rate of progress of women in academe has nevertheless been painfully slow. For example, statistics on economists collected and published by the American Economic Association (Committee on the Status of Women in the Economics Profession 1994) suggest that in recent years, about 20% of Economics assistant professors in graduate Ph.D.-granting departments were women, about 10% of associate professors were women, and under 5% of full professors were women. The percentage of new assistant professors who are women has lagged behind the percentage of new Ph.D.s who are women by 10 to 15 percentage points. And the percentage of promotions to associate (and full) professor that are accounted for by women has lagged behind the percentage of assistant (and associate) professors who were women and "promotable."

One of the explanations (or perhaps excuses) offered for the slow progress of women in academe is that faculty women have higher rates of voluntary turnover than do faculty men. This explanation accords with the general finding that women have higher rates of labor market turnover than do men (Blau and Kahn 1981; Light and Ureta 1992), and may provide a psychic balm both for those frustrated by the slow progress of women in academe and for those who might frustrate that progress.

Studies to date of faculty turnover have used grouped (or university-level) data, which usually preclude examination of gender differences in faculty turnover (Ehrenberg, Kasper, and Rees 1991; Rees and Smith 1991). In this paper we offer evidence on faculty turnover using micro data from a single large public university -- Michigan State University (MSU) -- during the decade of the 1980s. Our findings suggest strongly that the higher separation rates that are observed for faculty women are accounted for by differences between men and women in appointment status -- that is, faculty women have higher turnover rates than faculty men because a higher percentage of women than of men hold temporary appointments.

Gender Differences in Reasons for Separation

To address the issue of faculty turnover, we use data from computerized personnel records on all MSU faculty as of October 1 in each year from 1981 through 1990. In addition to salary, these data include information on the individual characteristics of each faculty member -- gender, ethnicity, birth year, highest degree earned (and year in which the highest degree was earned), and whether the faculty member was a veteran or handicapper. The data also include information on faculty status -- that is, each faculty member's appointment status (whether temporary or

tenure system, 10- or 12-month, and part-time or full-time), departmental unit, year of appointment, and rank.[1]

Finally, MSU's personnel records include a so-called termination code for faculty who separate from the university. We have grouped the reasons for leaving MSU into five main categories: (1) the end of a temporary appointment, (2) retirement, (3) acceptance of a position in another organization (subdivided into academic and nonacademic), (4) personal (subdivided into death, medical/long-term disability, and other personal reasons[2]), and (5) cancellation or termination (subdivided into failure to be reappointed and cancellation/dismissal/other[3]). For some faculty, the termination code fails to give a reason for the separation ("Other" or "No reason given"), and for other faculty, the annual salary data clearly indicate a separation but there is no termination code. We have assigned all such cases to a sixth category, "No reason on record."[4]

Table 1 (column 1) shows that there were a total of 3,252 faculty separations from MSU during the 1980s. Most of these separations -- 60% -- resulted from a temporary appointment ending. The next most frequent reason for separation was regular retirement (12%), followed by departure for another university (7%), and departure for industry or government (4%). In 11% of all separations, there was no reason on record.

There appear to be important differences between faculty women and men in reasons for separation -- see columns 2 and 3 of Table 1. The end of a temporary appointment accounted for 74% of women's separations, but for only 53% of men's separations. Retirement (both early and regular) accounted for only 4% of women's separations, but for 17% of men's separations. The main reasons for these differences, as we develop below, are that a far higher proportion or women than men hold temporary appointments, and a far higher proportion of men than women are full professors at or near retirement age.

Separation Rates of Faculty Women and Men

The figures displayed in Table 1 are simple tabulations of faculty separations from MSU. They say nothing about the number of faculty separations relative to the number of faculty who are "at risk" of separating. The annual separation rate -- the number of faculty separations in a

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[1]The main deficiency of these data is the lack of information on research output, teaching competence, and other measures of productivity. MSU does not maintain a centralized file of such information, and the costs (to us) of building such records would be prohibitive.

[2]The category "other personal reasons" includes "moving," "work on degree," and "personal reasons."

[3]The "cancellation/dismissal/other" category includes, in additionto cancellation of a contract and dismissal for cause, "project completed, budget cut."

[4]The administrative data continue to show salary data for faculty on leave or sabbatical, so we do not mistake such cases for separations.

given year divided by the number of faculty who were employed in that year -- is the key variable at issue in discussions of retention of faculty men and women.

Table 2 displays annual separation rates of faculty women and men for 1981-82 through 1989-90. Columns 1 and 2 show that the *total* separation rate of faculty women is substantially higher than that of faculty men -- higher by 50% or more in all but 1982-83.[5] For example, in 1989-90, 17.7% of faculty women (149 of out 840) separated from MSU, whereas 11.1% of faculty men (256 out of 2,309) separated.

But there is little difference between *tenure system* women and men in their separation behavior -- compare columns 3 and 4. Similarly, there is little difference between *temporary* women and men in separation behavior -- compare columns 5 and 6.[6] The point is simple but basic: The higher *total* separation rates of faculty women are due to the appointment status of faculty women as opposed to any difference between faculty women and men in underlying behavior. That is, because a disproportionate number of women hold temporary appointments, and because temporary faculty (both women and men) have relatively high rates of turnover, faculty women have higher total separation rates than do faculty men.

In fact, during the 1980s the percentage of all appointments of women that were temporary never fell below 48% (as can be computed from the denominators of the figures in parentheses in Table 2). In contrast, the percentage of all appointments of men that were temporary never exceeded 26%.[7] The higher percentage of temporary appointments among faculty women, rather than a difference in underlying separation behavior, is responsible for the higher total separation rates of faculty women.

Separation Rates by Reason

The similarity between faculty women and men in their separation behavior (once appointment status is accounted for) carries over to specific types of separation behavior, such as retirement, movement to a non-MSU position, and departure for some personal reason. This is shown in Table 3, which displays separation rates for faculty women and men by reason.

Columns 1 and 2 of Table 3 offer a comparison of the regular retirement rates of MSU faculty men and women for 1981-82 through 1989-90. These rates are computed by dividing the number of regular faculty retirees in each year by the number of faculty eligible for retirement

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[5]The hypothesis that the total separation rates are equal for men and women is rejected at the .0001 level.

[6]The hypothesis that the separation rates are equal for men and women cannot be rejected at the .05 level for either tenure system or temporary faculty.

[7]The percentage of women on temporary appointments was quite stable during the decade, fluctuating between 48 and 52% and showing no trend. In contrast, the percentage of men on temporary appointments increased steadily from 19% in 1981-82 to 26% in 1989-90.

under MSU regular faculty retirement rules in the same year.[8] There is remarkably little variation in retirement rates, either over time or between women and men. Although the retirement rates for faculty women are slightly higher than those for men in all but two years, the differences between the rates for women and men are never large enough to be statistically significant at even the 10% level.

Similarly, there seem to be no important differences between women and men in their separations rates to non-MSU positions (columns 3 and 4 of Table 3) or in their separation rates for personal reasons (columns 5 and 6 of Table 3).

The separation rates displayed in Tables 2 and 3 are unadjusted, in that they do not control for individual characteristics (such as age, ethnicity, veteran or handicapper status), certain aspects of a faculty member's appointment status (such as rank, departmental unit, or whether the appointment is 10- or 12-month), or salary (either in absolute terms or relative market opportunities). However, we have estimated multivariate models of the probability of separating from MSU (often referred to as hazard models) that do control for as many observable determinants of separation as possible.[9] Although space constraints do not permit us to report fully on the results of these separation probability models, the basic results can be stated quite simply. First, among faculty on temporary appointments, women are less likely than men to separate from MSU, all else equal (the difference, about 6 percentage points, is statistically significant at the 1 percent level). Second, gender has essentially no impact on the probability of retirement among MSU faculty, all else equal. Third, among tenure system faculty, gender has essentially no impact on the probability of leaving MSU for a non-MSU position, all else equal.

Summary and Conclusion

The evidence summarized here points to essentially similar separation behavior for faculty women and men. Although the total separation rate of faculty women generally exceeds the total separation rate of faculty men by 50% or more, this difference is easily explained -- whereas fewer than a quarter of all faculty men hold temporary appointments, nearly half of all faculty women hold temporary appointments. Since the annual separation rate of temporary faculty tends to be about five times the annual separation rate of tenure system faculty, it is hardly surprising that faculty women in aggregate have higher turnover than faculty men. But temporary

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[8]MSU faculty are eligible for regular retirement (which implies mainly MSU-paid health insurance throughout retirement) if they are either (a) age 62 and have 15 years of service at MSU or (b) have 25 years of service at any age. In 1981-82, there was an early retirement offer under which certain groups of faculty were invited to apply for early retirement. However, since not all faculty who applied were accepted for early retirement, it is impossible to know which faculty were in fact eligible (that is, it is impossible to create a "risk set" for early retirement). Accordingly, we have excluded from the calculations in Table 3 all MSU faculty retired under the early retirement plan.

[9]Each of the separation hazard models specifies the probability of separation in year t (end of temporary appointment, retirement, or separation to a non-MSU position) as a function of observable independent variables in the same year.

faculty women and men have essentially the same (high) separation rates, and tenure system faculty women and men have essentially the same (low) separation rates.

As an explanation of the slow progress of women in academe, then, a higher rate of voluntary turnover of faculty women appears to be a red herring. Once hired into tenure system positions, faculty women are as likely to stay as men. The conclusion is rather clear: hiring women into tenure system positions is the key to improving the standing of women in academe.

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Table 1

Faculty Separations by Gender and Reason for Separation, 1981-90

Reason for Separation	(1) Women and Men	(2) Women	(3) Men
Total	3,252 (100%)	1,067 (100%)	2,185 (100%)
Temporary appointment ended	1,944 (60%)	789 (74%)	1,155 (53%)
Regular Retirement	390 (12%)	38 (4%)	352 (16%)
Early Retirement	23 (1%)	3 (<1%)	20 (1%)
To a non-MSU position:			
Other university	237 (7%)	52 (5%)	185 (9%)
Industry/government/other	136 (4%)	26 (2%)	110 (5%)
Personal:			
Death	46 (1%)	7 (1%)	39 (2%)
Medical/long-term disability	10 (<1%)	0 (0%)	10 (<1%)
Other personal[1]	43 (1%)	29 (3%)	14 (1%)
Cancellation or Termination:			
Not reappointed	28 (1%)	7 (1%)	21 (1%)
Cancellation/dismissal/other[2]	50 (2%)	19 (2%)	31 (1%)
No reason on record	345 (11%)	97 (9%)	248 (11%)

Notes:
1 "Other personal" includes "moving," "work on degree," and "personal reasons."
2 "Cancellation/dismissal/other" includes "project completed, budget cut."

Table 2

Annual Faculty Separation Rates by Appointment Status and Gender, 1981-90
(Figures used to compute separation rates in parentheses)

	Total		Tenure System		Temporary Faculty	
Year	(1) Women	(2) Men	(3) Women	(4) Men	(5) Women	(6) Men
1981-82	21.8% (145/664)	13.2% (316/2387)	9.9% (33/335)	8.1% (158/1939)	34.0% (112/329)	35.3% (158/448)
1982-83	15.8% (99/628)	11.2% (255/2271)	4.6% (15/327)	5.9% (109/1845)	27.9% (84/301)	34.2% (146/426)
1983-84	17.7% (114/644)	9.8% (219/2231)	7.7% (26/337)	5.9% (106/1793)	28.7% (88/307)	26.2% (113/432)
1984-85	14.7% (96/654)	9.6% (217/2251)	6.3% (21/333)	4.5% (79/1773)	23.4% (75/321)	28.9% (138/478)
1985-86	14.8% (103/698)	9.7% (220/2264)	3.8% (13/344)	4.3% (76/1758)	25.4% (90/354)	28.5% (144/506)
1986-87	16.1% (122/758)	10.7% (245/2282)	4.1% (15/362)	4.7% (83/1774)	27.0% (107/396)	31.9% (162/508)
1987-88	15.0% (119/792)	10.0% (230/2300)	2.8% (11/390)	4.5% (79/1764)	26.9% (108/402)	28.2% (151/536)
1988-89	14.8% (120/810)	9.9% (227/2288)	4.7% (19/404)	4.4% (76/1741)	24.9% (101/406)	27.6% (151/547)
1989-90	17.7% (149/840)	11.1% (256/2309)	4.1% (17/417)	5.0% (86/1708)	31.2% (132/423)	28.3% (170/601)

Notes: Annual separation rates are computed as the number of faculty separations in a given year divided by the number of faculty holding a position (in a given category) in that year. For example, in 1981-82, there were 335 tenure system women, 33 of whom separated, giving a separation rate of 9.9%.

Table 3
Annual Faculty Separation Rates by Reason and Gender, 1981-90
(Figures used to compute separation rates in parentheses)

	Retirement		To Non-MSU Position		Personal	
Year	(1) Women	(2) Men	(3) Women	(4) Men	(5) Women	(6) Men
1981-82	13.0% (3/23)	12.2% (44/362)	2.3% (15/664)	2.3% (55/2387)	0.5% (3/664)	0.5% (11/2387)
1982-83	11.5% (3/26)	11.1% (38/341)	1.0% (6/628)	1.5% (33/2271)	0.5% (3/628)	0.6% (14/2271)
1983-84	12.9% (4/31)	10.5% (35/334)	1.7% (11/644)	2.2% (49/2231)	0.9% (6/644)	0.2% (5/2231)
1984-85	12.9% (4/31)	10.0% (33/329)	2.0% (13/654)	1.2% (28/2251)	0.9% (6/654)	0.3% (6/2251)
1985-86	6.1% (2/33)	10.9% (35/322)	0.6% (4/698)	1.0% (23/2264)	1.0% (7/698)	0.1% (2/2264)
1986-87	12.5% (5/40)	13.6% (44/323)	0.7% (5/758)	1.3% (29/2282)	0.5% (4/758)	0.2% (4/2282)
1987-88	12.8% (5/39)	9.4% (32/342)	0.8% (6/792)	1.0% (23/2300)	0.3% (2/792)	0.4% (10/2300)
1988-89	12.5% (5/40)	10.2% (39/381)	1.4% (11/810)	1.3% (29/2288)	0.2% (2/810)	0.2% (5/2288)
1989-90	13.5% (7/52)	12.2% (52/427)	0.8% (7/840)	1.1% (26/2309)	0.4% (3/840)	0.3% (6/2309)

Notes: Annual separation rates are computed as the number of faculty separations of a given type in a given year divided by the number of faculty holding a position in that year. In the case of retirement rates, the denominator is the number of faculty eligible for retirement (rather than all faculty). For example, in 1981-82, 362 faculty men were eligible to retire from MSU, 44 of whom retired, giving a retirement rate of 12.2%.